

REMARKS

Claim 2 has been amended. Claims 1 through 25 are now pending in this application.

In paragraph 2 of the Office Action, claim 2 was objected to. Claim 2 has been amended to overcome the objection.

Claims 1, 2 and 25 were rejected under 35 U.S.C 102(b) as being anticipated by Orr (U.S. Patent 3,727,620). The Applicant respectfully disagrees.

Claim 1 recites a chuck assembly for holding a sample (please see Figures 5-6). The chuck member has first fluid passages directing a fluid in a fluid flow through the chuck and toward the sample. The chuck member has second fluid passages directing fluid away from the sample. The sample holder is disposed to hold the sample with a predetermined surface of the sample in a predetermined orientation relative to the fluid flow directed by the chuck member toward the sample.

Orr (U.S. Patent 3,727,620) does not anticipate these features. Orr discloses a rinsing and drying device 11 for batch processing of thin wafers 12 carried in baskets 13 with faces of the wafers 12 in a radial orientation about central axis 14. Rotary member 16 supports and rotates basket 13. Spray devices 17 (i.e. spray nozzles 44) are stationarily positioned adjacent rotary member 16 to spray fluids over the faces of wafers 12 (please see figure 4, and col. 3, lines 34-38). A tub 18 encircles rotary member 16 to contain and drain fluids.

Nowhere in Orr (U.S. Patent 3,727,620) is there a disclosure or suggestion of the chuck member having (both) first fluid passages directing a fluid in a fluid flow through the chuck and toward the sample as claimed. Instead, as noted before, in Orr (U.S. Patent 3,727,620) stationary spray devices 17 (i.e. spray nozzles 44) are positioned to spray fluids directly over the faces of wafers 12 (not through basket 13) as seen clearly in Fig. 4. After being sprayed (by spray nozzles 44) directly onto the faces of the wafers 12, the fluid on the wafer faces is moved along the radially oriented wafer faces by the centrifugal acceleration of the wafers (when being spun by basket 13). Though not expressly disclosed, presumably the fluid on the wafer faces, under the impetus of the wafer centrifugal acceleration, runs off the wafer faces and exits the basket 13 through slots in the outer perimeter of the basket 13 (see Fig. 1, a marked up copy of which is appended hereto for the convenience of the Examiner). This is very different than having first fluid passages in the chuck directing fluid in a fluid flow through the chuck and toward the sample as called for in claim 1. Spraying fluid directly (from spray nozzles 44 remote to the basket) onto the wafer faces, as in Orr, is clearly not the same as having (first) fluid passages in the chuck member itself directing fluid in a fluid flow toward the wafer/wafer faces. Further, after having the fluid sprayed directly on the wafer faces, subsequent movement/flow of the fluid on the wafer faces along the wafer faces, due too inertia effects caused by rotation of the wafers, is also clearly not the same as having first fluid passages in the chuck member directing fluid flow toward the wafer/wafer faces. Rather, the fluid flow along the wafer face is directed by the wafer face itself (not a passage in the chuck) as

the inertia effects (as the wafer face is rotated) on the fluid cause the fluid on the wafer face to flow radially outward. The radial slots in which the wafers are seated do not serve to direct fluid in a fluid flow toward the wafer/wafer faces (fluid on the surfaces of the slots would flow radially outward along the slot surface in similar manner to the fluid on the wafer faces, and is not directed in a fluid flow toward the wafer) nor are there any other passages or slots through the basket 13 in Orr directing fluid in a fluid flow through the chuck member and toward the sample as called for in claim 1. The slots in the outer perimeter of the basket 13 allow the fluid from the wafer faces, and other surfaces of the basket 13 to exit the basket and thus clearly do not direct fluid toward the sample. It is further noted, that the slots in the outer basket perimeter appear to be mere openings (holes) in the perimeter surface and as such capable only of allowing fluid to escape/exit and not capable of directing or propelling fluid in a fluid flow. Nowhere does Orr disclose or suggest both first fluid passages through the chuck directing fluid in a fluid flow through the chuck and toward the sample, and second fluid passages through the chuck directing fluid away from the sample as otherwise called for in claim 1.

In Section 3 of the Action, the Examiner points to col. 2, lines 46-57 in Orr, stating that the basket has a series of slots and webs forming an open grill work construction, as disclosure of first fluid passages through the chuck. The Examiner then relies on the slots/grooves in the outer basket perimeter, been in Fig. 1, as disclosure of second fluid passages through the chuck. It is not clear whether, and it is possible that, the grooves in the outer perimeter are merely the outer

openings in the perimeter for the slots of the "open grill work" (referred to in col. 2, lines 46-57), as no slots are shown anywhere in Orr, and there is no other mention of other slots in the basket 13 than the reference to the slots of the "open grill work" (i.e. the slots for the open grill work are one and the same as peripheral grooves). Thus, it appears that Orr discloses at most only first passages through the basket. Nevertheless, as noted before, there is simply no indication (express or inherent) of fluid passages through the chuck directing fluid in a fluid flow through the chuck and towards the sample as called for in claim 1.

Further still, nowhere in Orr (U.S. Patent 3,727,620) is there a disclosure or suggestion of the sample holder being disposed to hold the sample in a predetermined orientation relative to the fluid flow directed by the chuck member toward the sample. Instead, Orr (U.S. Patent 3,727,620) discloses basket 13 that supports wafers 12 in an upstanding vertical position and radially disposed about central hub 26 and with spray devices 17 (nozzles) positioned stationary relative to rotating basket 13 and spraying fluid directly over the faces of wafers 12. Thus the flow direction changes (i.e. from the stationary nozzles) relative to the wafers 12 as basket 13 rotates, and conversely the orientation of the wafers held in the rotating basket changes relative to the fluid flow. Therefore, not only does basket 13 fail to direct a fluid in a fluid flow through the basket and toward the sample as claimed, but is also fails to hold a sample in a predetermined orientation relative to fluid flow directed by the chuck member toward the sample as called for in claim 1.

For the reasons set forth above, the features of claim 1 are neither disclosed or suggested by Orr (U.S. Patent 3,727,620). Accordingly, claim 1 is patentable over Orr (U.S. Patent 3,727,620).

Claim 2 is dependent upon claim 1. For the reasons set forth above relating to claim 1, the features of claim 2 are neither disclosed or suggested by Orr (U.S. Patent 3,727,620). Accordingly, claim 2 is patentable over Orr (U.S. Patent 3,727,620).

Claim 25 recites a chuck member having first fluid passages (through the chuck member) directing a fluid in a fluid flow through the chuck and toward the sample, and having second fluid passages through the chuck member directing the fluid away from the sample. A sample holder is disposed to hold the sample with a predetermined surface in a predetermined orientation to the fluid flow directed by the chuck member toward the sample. When the shaft is turned one direction, fluid flows generally along the shaft in a first direction and through the first fluid passages in the chuck member around the sample holder and flows in a second direction generally opposite to the first direction.

As noted before, Orr (U.S. Patent 3,727,620) discloses a rinsing and drying device 11 for batch processing of thin wafers 12 carried in baskets 13 with faces of the wafers 12 in a radial orientation about central axis 14. Rotary member 16 supports and rotates basket 13. Spray devices 17 are stationarily positioned adjacent rotary member 16 to spray fluids over the faces of wafers 12. A tub 18 encircles rotary member 16 to contain and drain fluids.

Nowhere in Orr (U.S. Patent 3,727,620) is there a disclosure or suggestion of the chuck member having first fluid passages directing a fluid in a fluid flow through the chuck and toward the sample as claimed. Instead, Orr (U.S. Patent 3,727,620) discloses stationary spray devices 17 positioned to supply fluids over the faces of wafers 12 directly (not through basket 13) which is different than where the fluid is directed in a fluid flow through first fluid passages of a chuck member and toward the sample where the chuck member holds the sample as claimed in claim 25. Orr (U.S. Patent 3,727,620) discloses basket 13 having a series of slots to support the wafers 12 in an upstanding vertical position and radially disposed about central hub 26 where basket 13 does not direct a fluid in a fluid flow through the basket and toward the sample as claimed. No where in Orr (U.S. Patent 3,727,620) is there a disclosure or suggestion of the sample holder being disposed to hold the sample in a predetermined orientation relative to the fluid flow directed by the chuck member toward the sample. Instead, Orr (U.S. Patent 3,727,620) discloses basket 13 that supports wafers 12 in an upstanding vertical position and radially disposed about central hub 26 and with spray devices 17 positioned stationary relative to rotating basket 13 and supply fluid directly over the faces of wafers 12. The flow direction thus changes relative to the wafers 12 as basket 13 rotates vice versa. Nowhere in Orr (U.S. Patent 3,727,620) is there a disclosure or suggestion that when the shaft is turned, fluid flows generally along the shaft in a first direction through the first fluid passages in the chuck member around the sample holder and flows in a second direction generally opposite to the first direction as

are neither disclosed or suggested by Orr (U.S. Patent 3,727,620) either alone or in combination with Risse (U.S. Patent 3,986,704). Accordingly, claim 3 is patentable over Orr (U.S. Patent 3,727,620) in view of Risse (U.S. Patent 3,986,704).

Claim 4 recites the apparatus of Claim 3 where the first fluid passages (i.e. the passages directing fluid toward the sample) have a plurality of openings extending through the chuck member in a direction parallel to a longitudinal axis of the chuck member.

Orr (U.S. Patent 3,727,620) discloses a rinsing and drying device 11 for batch processing of thin wafers 12 carried in baskets 13 with faces of the wafers 12 in a radial orientation about central axis 14. Rotary member 16 supports and rotates basket 13. Spray devices 17 are positioned adjacent rotary member 16 to supply fluids over the faces of wafers 12 (please see figure 4).

Risse (U.S. Patent 3,986,704) discloses a conical member 12 (please see figure 2) and outer cylinder 18 with conduits 14 having circular cross section with their axis disposed other than parallel to the axis of motor shaft 10 (please see column 3, lines 14-17).

Nowhere in Orr (U.S. Patent 3,727,620) either alone or in combination with Risse (U.S. Patent 3,986,704) is there a disclosure or suggestion of where the first fluid passages have a plurality of openings extending through the chuck member in a direction parallel to a longitudinal axis of the chuck member. Instead, Risse (U.S. Patent 3,986,704) discloses a conical member 12 (please see figure 2) and outer cylinder 18 with conduits 14 having circular cross section with their axis disposed

other than parallel to the axis of motor shaft 10 (please see column 3, lines 14-17).

The features of claim 4 are neither disclosed nor suggested by Orr (U.S. Patent 3,727,620) either alone or in combination with Risse (U.S. Patent 3,986,704). Accordingly, claim 4 is patentable over Orr (U.S. Patent 3,727,620) in view of Risse (U.S. Patent 3,986,704).

Claim 5 recites the apparatus of Claim 4 in combination with a motor for rotating the shaft so that fluid flows generally along the shaft in a first direction and through the openings in the chuck member around the sample holder and then along a wall of the chamber in a second direction generally opposite to the first direction.

Orr (U.S. Patent 3,727,620) discloses a rinsing and drying device 11 for batch processing of thin wafers 12 carried in baskets 13 with faces of the wafers 12 in a radial orientation about central axis 14. Rotary member 16 supports and rotates basket 13. Spray devices 17 are positioned adjacent rotary member 16 to supply fluids over the faces of wafers 12 (please see figure 4). A tub 18 encircles rotary member 16 to contain and drain fluids.

Risse (U.S. Patent 3,986,704) discloses a rotatable motor shaft 10 connected to a cylindrical member 12 having elongated slots. Outer cylinder 18 surrounds and encloses cylindrical member 12.

Nowhere in Orr (U.S. Patent 3,727,620) is there a disclosure or suggestion that rotating the shaft fluid flow causes generally along the shaft in a first

direction and through the openings in the chuck member around the sample holder and then along a wall of the chamber in a second direction generally opposite to the first direction as claimed.

Instead, Orr (U.S. Patent 3,727,620) discloses rotary member 16 having ring 37 with openings to provide passage for spent fluids radially away from the basket 13 and into tub 18 where it pools at the bottom. Rotating the shaft in Orr causes fluid flow radially outwards from the shaft and not along the shaft in a first direction and through the openings in the chuck member around the sample holder and then along a wall of the chamber in a second direction generally opposite to the first direction as claimed. The cylindrical member 12 in Risse propels fluids in but a single direction and not both along the shaft in a first direction and through the openings in the chuck member around the sample holder and then along a wall of the chamber in a second direction generally opposite to the first direction as claimed.

As neither Orr nor Risse disclose or suggest the features called for in claim 5, the combination of Orr and Risse cannot provide features that are not disclosed or suggested in either reference. Accordingly, claim 5 is patentable over Orr (U.S. Patent 3,727,620) in view of Risse (U.S. Patent 3,986,704).

Claims 21 and 22 were rejected under 35 U.S.C 103(a) as being unpatentable over Orr (U.S. Patent 3,727,620).

In addition to the features of claim 1, claim 21 recites that the sample holder is a rectangular plate. Nowhere in Orr (U.S. Patent 3,727,620) is there a disclosure or

claimed in claim 25. Instead Orr (U.S. Patent 3,727,620) discloses rotary member 16 having ring 37 with openings to provide passage for spent fluids radially away from the basket 13. The fluid flung off the rotary member, when the shaft is turned, is collected in tub 18 and drained out. There is simply no disclosure or suggestion that when the shaft is turned, fluid flows generally along the shaft in a first direction through the first fluid passages, in the chuck, around the sample holder and flows in a second direction generally opposite to the first direction as claimed in claim 25. Indeed, Orr (U.S. Patent 3,727,620) fails to disclose fluid flow directed by the chuck member toward the sample; Orr (U.S. Patent 3,727,620) fails to disclose a sample holder disposed to hold a sample in a predetermined orientation relative to fluid flow directed by the chuck member toward the sample; and Orr (U.S. Patent 3,727,620) fails to disclose that when the shaft is turned, fluid flows generally along the shaft in a first direction through the first fluid passages in the chuck member around the sample holder and flows in a second direction generally opposite to the first direction as claimed in claim 25.

For the reasons set forth above, the features of claim 25 are neither disclosed or suggested by Orr (U.S. Patent 3,727,620). Accordingly, claim 25 is patentable over Orr (U.S. Patent 3,727,620).

Claims 3 - 8 were rejected under 35 U.S.C 103(a) as being unpatentable over Orr (U.S. Patent 3,727,620) in view of Risse (U.S. Patent 3,986,704).

Claim 3 is dependent upon claim 1. For the reasons set forth above relating to claim 1, the features of claim 3

suggestion of the sample holder being a rectangular plate nor would it have been a obvious design choice as it serves a different structural function, that is to further agitate the fluid. The features of claim 21 are neither disclosed or suggested by Orr (U.S. Patent 3,727,620). Accordingly, claim 21 is patentable over Orr (U.S. Patent 3,727,620).

In addition to the features of claims 1 and 21, claim 22 recites that the plate has a plurality of through holes formed thereon. Nowhere in Orr (U.S. Patent 3,727,620) is there a disclosure or suggestion of where the plate has a plurality of through holes formed thereon nor would it have been a obvious design choice as it serves a different structural function, that is to further agitate the fluid and allow fluid to pass through the holes. The features of claim 22 are neither disclosed or suggested by Orr (U.S. Patent 3,727,620). Accordingly, claim 22 is patentable over Orr (U.S. Patent 3,727,620).

Claims 12 - 14 and 23, 24 were rejected under 35 U.S.C 103(a) as being unpatentable over Orr (U.S. Patent 3,727,620) in view of Thompson (U.S. Patent 5,224,503).

In addition to the features of claim 1, claim 12 recites that sample receiving assembly comprises at least one clip for holding the sample to said sample holder. Nowhere in Orr (U.S. Patent 3,727,620) either alone or in combination with Thompson (U.S. Patent 5,224,503) is there a disclosure or suggestion of that sample receiving assembly comprises at least one clip for holding the sample to said sample holder. Instead, Thompson discloses a wafer carrier cleaning apparatus (cleans the

carrier(s), not the wafer(s)) with no disclosure or suggestion of that sample receiving assembly comprises at least one clip for holding the sample to said sample holder as claimed. The features of claim 12 are neither disclosed or suggested by Orr (U.S. Patent 3,727,620) either alone or in combination with Thompson (U.S. Patent 5,224,503). Accordingly, claim 12 is patentable over Orr (U.S. Patent 3,727,620) in view of Thompson (U.S. Patent 5,224,503).

In addition to the features of claim 1 and claim 12, claim 13 recites where the sample holder has a plurality of through holes formed therein. Nowhere in Orr (U.S. Patent 3,727,620) either alone or in combination with Thompson (U.S. Patent 5,224,503) is there a disclosure or suggestion of where the sample holder has a plurality of through holes formed therein nor would it have been a obvious design choice as it serves a different structural function, that is to further agitate the fluid and allow fluid to pass through the holes. Instead, Thompson discloses a wafer carrier cleaning apparatus (cleans the carrier(s), not the wafer(s)) with no disclosure or suggestion of where the sample holder has a plurality of through holes formed therein as claimed. The features of claim 13 are neither disclosed or suggested by Orr (U.S. Patent 3,727,620) either alone or in combination with Thompson (U.S. Patent 5,224,503). Accordingly, claim 13 is patentable over Orr (U.S. Patent 3,727,620) in view of Thompson (U.S. Patent 5,224,503).

In addition to the features of claim 1, claim 21 and claim 22, claim 23 recites that sample receiving assembly comprises at least one clip for holding the sample to said sample holder. Nowhere in Orr (U.S. Patent 3,727,620) either alone or in combination with Thompson (U.S. Patent 5,224,503) is there a disclosure or suggestion of that sample receiving assembly comprises at least one clip for holding the sample to said sample holder. Instead, Thompson discloses a wafer carrier cleaning apparatus (cleans the carrier(s), not the wafer(s)) with no disclosure or suggestion of that sample receiving assembly comprises at least one clip for holding the sample to said sample holder as claimed. The features of claim 23 are neither disclosed or suggested by Orr (U.S. Patent 3,727,620) either alone or in combination with Thompson (U.S. Patent 5,224,503). Accordingly, claim 23 is patentable over Orr (U.S. Patent 3,727,620) in view of Thompson (U.S. Patent 5,224,503).

Favorable reconsideration and allowance of the claims, which remain pending in this application, is respectfully requested. Should any unresolved issue remain, the Examiner is invited to call Applicant's Attorney at the telephone number indicated below.

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Respectfully submitted,



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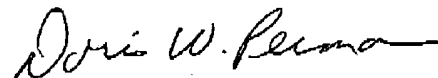
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